

Stem Cell Agency Invests Almost \$20 Million in Clinical Trial for Deadly Brain Cancer

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President unveils vision for New Strategic Plan

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San Francisco, CA – Glioblastoma is the most common and the most aggressive form of brain tumor, so funding an equally aggressive approach to treating it was a no-brainer for CIRM, California's stem cell agency.

The agency's governing Board today awarded \$19.9 million to ImmunoCellular Therapeutics to carry out a Phase 3 clinical trial in people with newly diagnosed glioblastoma using a kind of vaccine made from the patient's own immune system.

Every year an estimated 13,000 Americans die from glioblastoma. Around 50 percent of people die within 15 months of diagnosis, and fewer than 10 percent survive five years.

"This kind of deadly disease is precisely why we created CIRM 2.0, our new approval process to accelerate the development of therapies for patients with unmet medical needs," says C. Randal Mills, Ph.D., CIRM's President and CEO. "People battling glioblastoma cannot afford to wait years for us to agree to fund a treatment when their survival can often be measured in just months. We wanted a process that was more responsive to the needs of patients, and that could help companies like ImmunoCellular get their potentially life-saving therapies into clinical trials as quickly as possible."

In a healthy individual, the body's immune system usually spots and destroys foreign threats, such as viruses, bacteria and even cancer cells, that have infiltrated our bodies. In glioblastoma, patients typically undergo surgery, chemotherapy and radiation to destroy the tumor. But such treatments only temporarily halt tumor progression, and the cancer usually returns within months due to the presence of cancer stem cells that can elude these treatments. The surviving cancer stem cells can make new cancer cells which eventually spread throughout the brain.

In attacking this disease, the ImmunoCellular therapy targets six cell surface proteins that are found on glioblastoma cancer stem cells. Like a dog picking up the scent of a burglar from a piece of clothing, cells from the patient's own immune system are exposed to fragments of these cancer cell surface proteins in the lab. When returned to the patient's body, the immune system cells can now help "sniff out" and hopefully kill the cancer stem cells responsible for the tumor's recurrence and growth.

ImmunoCellular plans to recruit about 400 patients at 120 clinical trial sites around the US, Canada and Europe.

"We share CIRM's commitment to advancing potential breakthrough stem cell-based therapies to patients with unmet medical needs," said Andrew Gengos, ImmunoCellular President and CEO. "We are excited to be close to initiating our phase 3 registration trial. With this important grant of non-dilutive capital and our current cash, we are in position to cover the full cost of conducting the trial and ensure high quality trial execution."

Results from ImmunoCellular's earlier Phase 2 trial showed that patients given this therapy lived longer than those who got the standard treatment. It also showed minimal side effects.

Dr. Mills also presented the Board with an outline of the proposed new Strategic Plan for the agency. He said the plan lays out where the agency is today, where it wants to be in five years, and how it intends to get there. One of the key elements is to integrate all the different awards and programs that CIRM funds to turn the agency into a "stem cell accelerating machine."

Dr. Mills said extensive surveys, online and in person, of Board members, patient advocates, researchers and other stakeholders revealed some key findings:

- Patients want a more active role in helping CIRM achieve the its mission
- Researchers want help advancing their work and getting approval from the Food and Drug Administration to move into a clinical trial
- There is universal agreement on the need for regulatory reform

"We want this new Strategic Plan to be a bold vision for how to maximize CIRM's impact," says Dr. Mills. "So this plan lays out a coordinated campaign to overcome all the major obstacles we face and increase the speed and likelihood of success in delivering stem cell treatments to patients with unmet medical needs."

The agency's Board is due to discuss the proposed plan in detail at its December meeting.

About CIRM

At CIRM, we never forget that we were created by the people of California to accelerate stem cell treatments to patients with unmet medical needs, and to act with a sense of urgency commensurate with that mission.

To meet this challenge, our team of highly trained and experienced professionals actively partners with both academia and industry in a hands-on, entrepreneurial environment to fast track the development of today's most promising stem cell technologies.

With \$3 billion in funding and over 280 active stem cell programs in our portfolio, CIRM is the world's largest institution dedicated to helping people by bringing the future of medicine closer to reality.

For more information go to www.cirm.ca.gov.

About ImmunoCellular Therapeutics, Ltd.

ImmunoCellular Therapeutics, Ltd. is a Los Angeles-based clinical-stage company that is developing immune-based therapies for the treatment of brain and other cancers. ImmunoCellular has concluded a phase 2 trial of its lead product candidate, ICT-107, a dendritic cell-based immunotherapy targeting multiple tumor-associated antigens on glioblastoma stem cells. ImmunoCellular's pipeline also includes: ICT-121, a dendritic cell immunotherapy targeting the CD133 antigen on stem cells in recurrent glioblastoma; ICT-140, a dendritic cell immunotherapy targeting antigens on ovarian cancer stem cells; and the Stem-to-T-cell research program which engineers the patient's hematopoietic stem cells to generate antigen-specific cancer-killing T-cells. To learn more about ImmunoCellular, please visit www.imuc.com.

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